

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2005/023450

A. CLASSIFICATION OF SUBJECT MATTER

C07D471/04(2006.01), A61K31/437(2006.01), A61K31/4375(2006.01), A61P1/00(2006.01), A61P1/04(2006.01), A61P1/12(2006.01), A61P9/04(2006.01), A61P9/06(2006.01), A61P9/12(2006.01), A61P11/00(2006.01),

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A61K31/437, A61K31/4375, A61P1/00, A61P1/04, A61P1/12, A61P9/04, A61P9/06, A61P9/12, A61P11/00, A61P11/06, A61P25/00, A61P25/08, A61P25/16, A61P25/20, A61P25/22, A61P25/24, A61P43/00, C07D471/04

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1922-1996	Jitsuyo Shinan Toroku Koho	1996-2006
Kokai Jitsuyo Shinan Koho	1971-2006	Toroku Jitsuyo Shinan Koho	1994-2006

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Caplus (STN), REGISTRY (STN), MEDLINE (STN), EMBASE (STN), BIOSIS (STN), WPIDS (STN)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	LIMBACH, M. et al., Addition of Indole to Methyl 2-Chloro-2-cyclopropylideneacetate en Route to Spirocyclopropanated Analogues of Demethoxyfunitremorgine C and Tadalafil, Eur. J. Org. Chem., 2005, Vol.3, pages 610 to 617	1, 2, 4-8, 11, 13, 19
P, X	WO 2004/113300 A1 (Ono Pharmaceutical Co., Ltd.), 29 December, 2004 (29.12.04), Full text; particularly, Claim 5 (Family: none)	1-29, 31

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"T" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
24 March, 2006 (24.03.06)

Date of mailing of the international search report
11 April, 2006 (11.04.06)

Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
✓ X	JP 2004-501919 A (Riri Aikосу Ltd., Raiahiriti Co.), 22 January, 2004 (22.01.04), Page 22, chemical formulas 35, 36 & WO 2002/000657 A2 & EP 1313736 A2 & US 2003/181457 A1	1, 3, 5-8, 12
X	YAKHONTOV, L. N. et al., Azaindole derivatives. XXXVIII. Normal and abnormal course of reactions during 12-aza- β -carboline synthesis, Khimiya Geterotsiklicheskikh Soedinenii, 1970, Vol.11, pages 1550 to 1553	1, 3, 5, 7, 12
X	JP 2004-532852 A (Riri Aikосу Ltd., Raiahiriti Co.), 28 October, 2004 (28.10.04), Full text & WO 2002/088123 A1 & EP 1383765 A1 & US 2004/147542 A1	1, 4-8, 25-29, 31
X	JP 2004-518730 A (Riri Aikосу Ltd., Raiahiriti Co.), 24 June, 2004 (24.06.04), Full text & WO 2002/064591 A2 & EP 1360186 A2 & US 2004/116458 A1	1, 4-8, 25-29, 31
X	JP 2004-518729 A (Riri Aikосу Ltd., Raiahiriti Co.), 24 June, 2004 (24.06.04), Full text & WO 2002/064590 A2 & EP 1360185 A2 & US 2004/122035 A1	1, 4-8, 25-29, 31
X	JP 2002-524564 A (ICOS Corp.), 06 August, 2002 (06.08.02), Full text & WO 2000/015639 A1 & EP 114048 A1 & US 6462047 B1	1, 4-8, 25-29, 31
X	JP 2002-517500 A (SOCIETE DE CONSEILS DE RECHERCHES et D'APPLICATIONS SCIENTIFIQUES S.A.S.), 18 June, 2002 (18.06.02), Full text & WO 1999/064420 A1 & EP 1086101 A1 & US 6586445 B1 & US 2004/38970 A1	1, 4-8, 25-29, 31
✓ X	JP 3-287586 A (Taisho Pharmaceutical Co., Ltd.), 18 December, 1991 (18.12.91), Full text (Family: none)	1, 4-8, 25-27, 29, 31

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 9-511246 A (Interneuron Pharmaceuticals, Inc.), 11 November, 1997 (11.11.97), Full text & WO 1995/026723 A1 & EP 754041 A1 & US 5403851 A	1,4-8,25,26, 29,31
X	US 4336260 A (The Dow Chemical Co.), 22 June, 1982 (22.06.82), Full text (Family: none)	1,4,5,7,25, 26,29,31
X	CAIN, M. et al., β -Carbolines: Synthesis and Neurochemical and Pharmacological Actions on Brain Benzodiazepine Receptors, J. Med. Chem., 1982, Vol.25, pages 1081 to 1091	1,4,5,7,25, 29

Continuation of A. CLASSIFICATION OF SUBJECT MATTER
(International Patent Classification (IPC))

A61P11/06(2006.01), A61P25/00(2006.01), A61P25/08(2006.01),
A61P25/16(2006.01), A61P25/20(2006.01), A61P25/22(2006.01),
A61P25/24(2006.01), A61P43/00(2006.01)

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 30

because they relate to subject matter not required to be searched by this Authority, namely:

The invention as set forth in claim 30 pertains to methods for treatment of the human body by therapy and thus relates to a subject matter which this International Searching Authority is not required, under the provisions of Article 17(2)(a)(i) of the PCT (continued to extra sheet)

2. ☐ Claims Nos.:

because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:

because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest
the

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

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Continuation of Box No.II-1 of continuation of first sheet(2)

and Rule 39.1(iv) of the Regulations under the PCT, to search.

<Observation on the International Application>

Although "prodrugs" are mentioned in claims 1-25, 29 and 31, only a part of compounds among the prodrugs as disclosed in paragraph [0077] of the description are considered to be disclosed within the meaning of PCT Article 5.

Consequently, the invention of claims 1-25, 29 and 31 is not fully supported by the description within the meaning of PCT Article 6. Since the invention of claims 26-28 refers to claim 25, it is not fully supported by the description within the meaning of PCT Article 6 just like claim 25.